

## **Remarks**

After entry of the foregoing amendments, claims 37-50 are pending. Claim 37 has been amended to indicate that the nucleic acid polymer has a phosphodiester backbone. Support for this amendment can be found at least at Example 16 of the specification. Claim 50 was amended to correct typographical errors and clarify the claimed invention.

Applicants thank the examiner for the indication that claim 50 would be allowable if limited to the elected species and if the § 112 rejections were overcome.

### ***Specification***

Applicants have amended the title to render it more indicative of the claimed invention. Applicants, thus, respectfully request that the rejection be withdrawn.

Applicants submit that trademarks have been properly used in the specification. Applicants respectfully submit that both Texas Red and Cy5 are not in fact trademarks and are instead generic names for the fluorophores.

### ***Drawings***

Figure 2 was objected to because the axes were illegible. Applicants have submitted herewith a replacement for Figure 2. Applicants therefore request that the objection to the drawings be withdrawn.

### ***Rejections Under 35 U.S.C. § 112***

Claim 50 was rejected under § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the invention for various reasons, including the use of “comprise” and “comprises” for variables such as  $R_1$  to  $R_{14}$  and Z. Applicants have amended claim 50 to replace the words “comprise” and “comprises” with “are” and “is” respectively. Applicants respectfully submit that these amendments obviate the rejection and request that it be withdrawn.

Claim 50 was also rejected under § 112, second paragraph, as indefinite due to the use of the terms “linking group or bond”, “electron pair” and “linker” in the definition of Z. Applicants

respectfully submit that the terms “linking group” and “linker” are not indefinite. Applicants have defined this term in the specification at paragraph [0031] on page 11. “The term ‘linking group’ and ‘linker’ are used interchangeably and refer to a chemical group that is capable of reacting with a ‘complementary functionality’ of a reagent, e.g., to the oxygen of a nucleoside or nucleotide or nucleic acid, and forming a linkage that connects the anthraquinone quenching compound to the reagent.” (Specification at para [0031]). The specification goes on to provide examples of suitable linking groups for use when the complementary functionality is amine, oxygen and sulfhydryl. Thus, applicants respectfully submit that one of ordinary skill in the art would understand the meaning of the terms “linking group” and “linker” and request that the rejection be withdrawn.

Claim 50 was also rejected for the use of the term “bond” in the definition of Z. Applicants respectfully submit that one of ordinary skill in the art would understand what “bond” is meant to convey. The use of the term “bond” indicates that the oxygen is bonded directly to the nitrogen in formula (1). Applicants respectfully request that the rejection be withdrawn.

Further, claim 50 was rejected for the use of the term “electron pair” in the definition of R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub>. Applicants respectfully submit that one of ordinary skill in the art would understand that the use of this term indicates that the phosphorus of formula (2) can have 3 or 4 substituents. If the phosphorus has 3 substituents, then the remaining position is filled by an electron pair. Applicants respectfully request that the rejection be withdrawn.

#### ***Unsearchability of Claim 50***

Applicants respectfully submit that the amendments and response above render claim 50 searchable.

#### ***Rejections Under § 102***

Claims 37-47 and 49 were rejected under § 102(b) as anticipated by Batz et al. (U.S. Patent No. 6,117,973). Batz et al. teaches a method for determining a nucleic acid in a sample comprising binding a probe having a polymeric backbone different from the natural sugar phosphate backbone. Applicants have amended claim 37 to indicate that the nucleic acid polymer has a phosphodiester backbone and that the quencher is attached to the polymer. Thus,

Batz et al. does not teach each of the limitations of the claimed invention and does not anticipate claim 37.

Claims 38-47 and 49 are each dependent on claim 37 and are, therefore, patentable over Batz et al. for at least the reasons discussed above with respect to claim 37.

Applicants respectfully request that the § 102 rejection over Batz et al. be withdrawn.

### ***Rejections Under § 103***

Claim 48 was rejected under § 103 as obvious over Batz et al. in view of Jenne et al. (U.S. Patent No. 6,451,535). The office action acknowledges that Batz et al. does not specifically teach separation of an anthraquinone quencher from a fluorophore by cleaving an RNase restriction site between them. The office action cites Jenne et al. to address this deficiency. Claim 48 is dependent on claim 37. As is discussed above, Batz et al. does not teach a nucleic acid polymer having a phosphodiester backbone with an anthraquinone quencher attached to the polymer. Jenne et al. does not cure this deficiency. Thus, claim 48 is not obvious over Batz et al. in view of Jenne et al. and applicants respectfully request that the rejection be withdrawn.

### **CONCLUSION**

In light of the amendments and arguments above, applicants respectfully submit that the claims are allowable. Should any issues remain, the examiner is invited to contact the undersigned at the phone number below.

Respectfully submitted,

  
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